

REMARKS

I. Introduction

By the present Amendment, claim 10 has been amended, and claims 21-33 newly presented for consideration. No claims have been cancelled. Accordingly, claims 4-6, 10-16, 19, and 20-33 are now pending in the application. Claims 1, 10, and 14 are independent.

II. Office Action Summary

In the Office Action of May 4, 2005, claim 10 was objected to because of a minor informality. Claims 4, 6, 10, 11, 13, 14, 16, 19, and 20 were rejected under 35 USC §103(a) as being unpatentable over U.S. Patent 6,144,430 issued to Kuo, in view of U.S. Patent 5,663,777 issued to Aoyama and further in view of U.S. Patent 6,801,276 issued to Epstein et al. ("Epstein"). Claims 5, 12, and 15 were rejected under 35 USC §103(a) as being unpatentable over Kuo in view of Aoyama, and Epstein, and further in view of U.S. Patent 6,379,017 issued to Nakabayashi et al. ("Nakabayashi"). These rejections are respectfully traversed.

III. Objections to the Claims

Claim 10 was objected to because of a minor informality. Regarding this objection, the Office Action indicates that the phrase "liquid diffusing layer" should be replaced with --light diffusing layer--.

By the present amendment, claim 10 has been amended to correct this clerical error, thereby addressing the Examiner's concerns. Withdrawal of this rejection is therefore respectfully requested.

IV. Rejections Under 35 USC §103

Claims 4, 6, 10, 11, 13, 14, 16, 19, and 20 were rejected under 35 USC §103(a) as being unpatentable over Kuo, in view of Aoyama and further in view of Epstein. Regarding this rejection, the Office Action alleges that Kuo discloses a liquid crystal display device having most of the features of the claimed invention. In particular, the Office Action states that Kuo discloses a light diffusing layer "having a light diffusing material made of particles." The Office Action admits, however, that Kuo fails to disclose (and is in fact, silent on) the type of material used for the particles and the spectral characteristics of both the light diffusing layer and the metal reflecting layer. Epstein is relied upon for teaching a light diffusing layer having light diffusing material made of organic particles and having a flat type transmission spectral characteristic. Aoyama is relied upon for teaching a metal reflecting layer wherein the reflection spectral characteristics are of a flat type.

Applicants respectfully disagree with this analysis.

Independent claim 4 defines a liquid crystal display comprising:

a liquid crystal display panel which sandwiches a liquid crystal layer between a first substrate and a second substrate, a metal reflecting layer which is mounted on the first substrate and reflects light, and a light diffusing layer which is mounted on the second substrate, the light diffusing layer having a light diffusing material made of organic particles, wherein both of the transmission spectral characteristics of a visible light region of the light diffusing layer and the

reflection spectral characteristics of a visible light region of the metal reflecting layer are of a flat type.

According to independent claim 4, a liquid crystal display panel sandwiches a liquid crystal layer between a first substrate and a second substrate. A metal reflecting layer which reflect light is mounted on the first substrate, while a light diffusing layer having a light diffusing material made of organic particles is mounted on the second substrate. As set forth in independent claim 4, the transmission spectral characteristics of the light diffusing layer and the metal reflecting layer are both of a flat type.

The rejection under 35 USC §103(a) does not appear to be properly supported. As to the requirements of such a rejection, reference is made to the decision of In re Fine, 5 USPQ 2d 1596 (Fed. Cir. 1988), wherein the court pointed out that the PTO has the burden under '103 to establish a prima facie case of obviousness and can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. As noted by the court, whether a particular combination might be "obvious to try" is not a legitimate test of patentability and obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. As further noted by the court, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

Furthermore, such requirements have been clarified in the recent decision of In re Lee, 61 USPQ 2d 1430 (Fed. Cir. 2002) wherein the court in reversing an obviousness rejection indicated that deficiencies of the cited references cannot be remedied with conclusions about what is "basic knowledge" or "common knowledge".

The court pointed out:

The Examiner's conclusory statements that "the demonstration mode is just a programmable feature which can be used in many different device[s] for providing automatic introduction by adding the proper programming software" and that "another motivation would be that the automatic demonstration mode is user friendly and it functions as a tutorial" do not adequately address the issue of motivation to combine. This factual question of motivation is immaterial to patentability, and could not be resolved on subjected belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher."... Thus, the Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion. (emphasis added)

Applicants further note that the burden is on the Examiner "to show a motivation to combine the references that create the case of obviousness. In other words, the examiner must show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed." See In re Rouffet, 47 USPQ2d 1453, 1457-1458 (Fed. Cir. 1998). As further stated by the Federal Circuit, "virtually all [inventions] are combinations of old elements." Environmental Designs, Ltd. v. Union Oil Co., 218 USPQ 865, 870

(Fed. Cir. 1983). In the decision of In re Rouffet, the Federal Circuit also pointed out that:

[A]n examiner may often find every element of a claimed invention in the prior art. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat patentability of the claimed invention.

With respect to the rejection of independent claim 4, the Examiner admits that Kuo is completely silent on both the use of organic materials in the light diffusing layer, as well as the claimed spectral characteristics of the light diffusing layer and metal reflecting layer. Epstein is relied upon for disclosing the use of organic materials in the light diffusing layer. However, Epstein only provides a light diffusing layer having spectral characteristic of a flat type. Epstein, is completely silent on the use of any additional layers having spectral characteristic of a flat type as set forth in independent claim 4.

The Office Action places additional reliance on Aoyama for disclosing a metal reflecting layer having spectral characteristic of a flat type. Similar to Epstein, however, Aoyama is completely silent on the use of any additional layers that have a spectral characteristic of a flat type.

It appears that the claimed invention itself is being used as a blueprint to identify individual pieces of prior art containing elements present in the claim. As previously discussed, Epstein simply fails to provide any disclosure or suggestion for

anything but a light diffusing layer having spectral characteristic of a flat type. As one skilled in the art, Epstein could easily have turned to the teachings of Aoyama to provide both a light diffusing layer and a metal reflecting layer having spectral characteristic of a flat type, because the patent to Aoyama was available for Epstein's review prior to the original filing of Epstein's application. In addition, it is further unclear how, or why, a skilled artisan reviewing the disclosure of Kuo would have been motivated to seek out the teachings of Epstein and Aoyama where (i) Kuo is completely silent on the use of organic materials, and both a light diffusing layer and metal reflecting layer having spectral characteristic of a flat type, and (ii) Epstein is further silent on the use of anything more than a light diffusing layer having spectral characteristic of a flat type, even though the teachings of Aoyama were clearly at his disposal.

The Office Action boldly makes the conclusory statement that it is "a general design goal in the art to construct metal reflecting layers and diffusers such as disclosed by Kuo to have uniform transmittance and reflectance characteristics across the range of visible light." Page 3, second paragraph. Notwithstanding this "general design goal," however, Kuo remains completely silent on providing such characteristics. As stated in the decision of In re Dembiczak:

Combining prior art references without evidence of such a suggestion, teaching, or motivation [to combine the prior art references] simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability – the essence of hindsight."

In re Dembiczak, 50 USPQ2d 1614, at 1617.

Contrary to the assertions made in the Office Action, the combination of light diffusing layer and metal reflecting layer having the properties defined by independent claim 4 provides specific benefits to the liquid crystal display. For example, the claimed combination of light diffusing layer and metal reflecting layer improves the level of contrast in the liquid crystal display. See page 18, line 2 – page 20, line 10 of the specification.

In view of the foregoing, Applicants respectfully submit that the rejection under 35 USC §103(a) should be withdrawn because the combination of Kuo, Epstein, and Aoyama is improper since there is simply no motivation to combine these references, but for application of hindsight reconstruction using independent claim 4 as a blueprint.

It is therefore respectfully submitted that the combination of elements recited in independent claim 4 is allowable over the art of record.

Claims 5, 6, and 21-23 depend from independent claim 4, and are therefore believed allowable for at least the reasons set forth above with respect to independent claim 4. In addition, these claims each introduce novel elements that independently render them patentable over the art of record. For example, claim 21 further specifies that the difference between the maximum and minimum transmittance of light through the diffusing layer is not larger than 20% in a visible light region. Claim 22 further specifies that the difference between the maximum and minimum reflectance of light through the metal reflecting layer is not larger than 20%

in a visible light region. These features are simply not shown, or in any way suggested, by the art of record.

Independent claim 10 defines a liquid crystal display that comprises, in part:

a metal reflecting layer which is mounted on the first substrate and reflects light; and

a light diffusing layer which is mounted on the second substrate, the light diffusing layer having a light diffusing material made of organic particles;

wherein a difference between the maximum and the minimum of a transmittance of the light diffusing layer is not larger than 20% in a visible light region; and

wherein a difference between the maximum and the minimum of a reflectance of the metal reflecting layer is not larger than 20% in a visible light region.

According to independent claim 10, the difference between the maximum and minimum transmittance of the light diffusing layer is not larger than 20% in a visible light region. Furthermore, the difference between the maximum and minimum reflectance of the metal reflecting layer is not larger than 20% in a visible light region.

The Office Action alleges that the combination of Kuo, Epstein, and Aoyama discloses the features recited in independent claim 10. As previously discussed with respect to independent claim 1, however, the references are not properly combinable. Neither reference provides a motivation to seek out the teachings of the other two references in order to arrive at the claimed invention. Furthermore, the Office Action has not provided any evidence, from any of the references, of a motivation to combine the teachings of the remaining references.

Kuo clearly fails to disclose a light diffusing layer having light diffusing materials made of organic particles, and "wherein a difference between the

maximum and minimum of a transmittance of the light diffusing layer is not larger than 20% in a visible light region.” Kuo also fails to disclose that the “difference between the maximum and the minimum of a reflectance of the metal reflecting layer is not larger than 20% in a visible light region.” In fact, Kuo appears to be completely silent on these features. Applicants note that silence cannot be construed as disclosing or suggesting anything, particularly features recited in the claimed invention.

Epstein is silent on providing a metal reflecting layer “wherein the difference between the maximum and the minimum of a reflectance of the metal reflecting layer is not larger than 20% in a visible light region.” Aoyama, on the other hand, is completely silent on providing a light diffusing layer having a light diffusing material made of organic particles. Aoyama is further silent on providing a light diffusing layer “wherein a difference between the maximum and minimum of a transmittance of the light diffusing layer is not larger than 20% in a visible light regions,” as set forth in independent claim 10.

The only motivation for combining these references appears to be independent claim 10 itself. As discussed in the specification, use of both a light diffusing layer and a metal reflecting layer having the properties recited in independent claim 10 provides specific benefits to the claimed invention. For example, the claimed combination of light diffusing layer and metal reflecting layer improves the level of contrast in the liquid crystal display. See page 18, line 2 – page 20, line 10 of the specification.

It is therefore respectfully submitted that independent claim 10 is allowable over the art of record.

Claims 11-13 and 24-28 depend from independent claim 10, and are therefore believed allowable for at least the reasons set forth above with respect to independent claim 10. In addition, these claims each introduce novel elements that independently render them patentable over the art of record. For example, claim 24 further specifies that the transmission spectral characteristics of a visible light region of the light diffusing layer and the reflection spectral characteristics of a visible light region of the metal reflecting layer are both of a flat type. Claim 25 further specifies that the transmittance of the light diffusing layer is less than 30%. This particular feature is illustrated, for example, in Fig. 6 of the instant application. These features are simply not suggested by the art of record. In fact, Epstein clearly teaches away from a light diffusing layer having a transmittance of less than 30%. See col. 10, lines 31-35.

Independent claim 14 defines a liquid crystal display that comprises, in part:

- a metal reflecting layer which is mounted on the first substrate and reflects light; and

- a light diffusing layer which is mounted on the second substrate, the light diffusing layer having a light diffusion material made of organic particles;

- wherein the light diffusing layer is provided at an opposite side of the second substrate to the liquid crystal layer, the light diffusing layer including at least one of an adhesive agent and a tacky adhesive agent into which the light diffusion material is mixed, a difference between the maximum and the minimum of a transmittance of the light diffusing layer being not larger than 20% in a visible light region; and

- wherein a difference between the maximum and the minimum of a reflectance of the metal reflecting layer is not larger than 20% in a visible light region.

Independent claim 14 includes limitations that are somewhat similar to limitations recited in independent claim 10. According to independent claim 14, for example, the difference between the maximum and minimum transmittance of the light diffusing layer is not larger than 20% in a visible light region. Furthermore, the difference between the maximum and minimum reflectance of the metal reflecting layer is not larger than 20% in a visible light region. As previously discussed, the prior art fails to provide any motivation for arriving at the combination of such features.

It is therefore respectfully submitted that independent claim 14 is allowable over the art of record.

Claims 15, 16, 19, 20, and 29-33 depend from independent claim 14, and are therefore believed allowable for at least the reasons set forth above with respect to independent claim 14. In addition, these claims each introduce novel elements that independently render them patentable over the art of record. For example, claim 29 further specifies that the transmission spectral characteristics of a visible light region of the light diffusing layer and the reflection spectral characteristics of a visible light region of the metal reflecting layer are both of a flat type. Claim 30 further specifies that the transmittance of the light diffusing layer is less than 30%. These features are simply not suggested by the art of record.

V. Conclusion

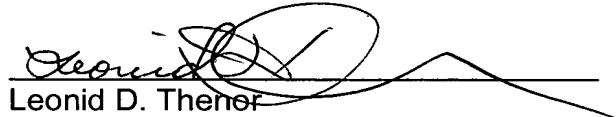
For the reasons stated above, it is respectfully submitted that all of the pending claims are now in condition for allowance. Therefore, a Notice of Allowance is believed in order, and courteously solicited.

If the Examiner believes that there are any matters which can be resolved by way of either a personal or telephone interview, the Examiner is invited to contact Applicants' undersigned attorney at the number indicated below.

AUTHORIZATION

Applicants request any shortage or excess in fees in connection with the filing of this paper, including extension of time fees, and for which no other form of payment is offered, be charged or credited to Deposit Account No. 01-2135 (Case: 501.40631X00).

Respectfully submitted,
ANTONELLI, TERRY, STOUT & KRAUS, LLP.


Leonid D. Thener
Registration No. 39,397

LDT/vvr
1300 N. Seventeenth Street
Suite 1800
Arlington, Virginia 22209
Tel: 703-312-6600
Fax: 703-312-6666

Dated: November 2, 2005